

PLEASE DO NOT PRINT THIS.

SWIMMING WITH SHARKS

This past summer, Biology Major Jordan Sputsa interned with [Oceans Research](#) in South Africa. For more information about his internship, see page 6.



ANNOUNCEMENTS

The Undergraduate Student National Dental Association was recently introduced as an undergraduate chapter of the Student National Dental Association (SNDA). Currently Salisbury University is the only institution in Maryland to initiate a chapter. Students have been working tirelessly to make USNDA a RSO on campus by the end of November and to gain national recognition so that we will be the first official USNDA chapter in Maryland. Thus far 16 SU students have expressed interest in participating in the organization. As an organization, we hope to create opportunities for undergraduates to gain exposure to the field of dentistry through shadowing, community service, visits to dental schools and inviting various dental professionals to enlighten students.



Left to right: Samuel Maiman, Shayla Butler, Dana Short, Ryan Mariner, Kelsey Clark, Krystal Donaldson.

This month they went to the University of Maryland School of Dentistry, SNDA 9th Annual Impressions Day Program, as their first outing. See picture above of some USNDA Members that attended the Program. Their second and last meeting of the semester will be held on Tuesday November 19 @ 7pm, Location TBA. For more information people may contact Krystal Donaldson, the president of the SU chapter of the USNDA (kd72606@gulls.salisbury.edu).



Dear students,

My name is Jordan Gaines Lewis, and I'm a Ph.D. candidate in Neuroscience at Penn State College of Medicine in Hershey, PA. In May of 2014 a blog written and edited by our graduate students called Lions Talk Science was launched. The purpose of the blog is fourfold:

1. To increase public understanding of the research we do;
2. To give a glimpse into a "day in the life" of a scientist (beyond nerdy pop culture images);
3. To educate prospective students and the community about what graduate school is; and
4. To dispel bad science journalism by having us scientists directly explain our findings to the readers.

We'd like to encourage you to pass on our blog to other students who may be interested in any or all of the blog's missions, which can be found at <http://med.psu.edu/lions-talk-science>. We also have a Facebook page (URL: <http://www.facebook.com/LionsTalkScience>).

Additionally, we'd like to ask that you send along any burning questions that you may have about science or grad school, in general, for us to blog about. We are also interested in accepting guest blog posts written by undergraduates about the research they are conducting and its relevance to medicine. More information can be found on our blog's "Contact" page. Thank you for your interest, and I look forward to hearing from you!

Ward Museum, Winter 2013–2014

The Ward Museum is located on 909 South Schumaker Drive, Salisbury, MD 21804

Winter Waterfowl Photo Workshop with Chris Hudson December 14, 2013, 6:45 am – 6:00 pm

Members - \$140, Non-members - \$160, Youth (14-17 years old) - \$110

Accompany nature photographer Chris Hudson as he travels Maryland's Eastern Shore in pursuit of waterfowl and the perfect photograph.

Student Art Show February 7 - March 24, 2014

The annual non-competitive Student Art Show is open to all students on the Delmarva Peninsula in kindergarten through 12th grade. The event is open to public, private, and homeschooled students. Due to space limitations, please RSVP with the number of works you wish to submit from your school by Tuesday, January 17, 2014. The Ward Museum invites students from Delmarva to submit their artwork to the annual Student Art Show exhibit held in the museum's Welcome Gallery. This year's theme is "Family" (Art that is about family or art that is envisioned and created with someone or some individuals that fit into at least one of the following categories: family, relatives, family friends, and guardians).

Wicomico Creekwatchers have concluded their 2013 sampling season!

This program, in existence since 2002, combines the efforts of Salisbury University students, citizen volunteers, business representatives, and the Wicomico Environmental Trust to provide controlled water quality analyses to inform public policies and support water-quality management initiatives. The Creekwatchers are also partners in the Wicomico River Project and participants in developing the Wicomico River Watershed Management plans. Their data are used in evaluating progress toward water quality improvements in the river.

The water quality testing is done by students in Dr. Judith Stribling's lab, with analytical support from the SU Bacterial Source Tracking Lab and the Horn Point Laboratory of the University of MD Center for Environmental Science. The program is funded by the Chesapeake Bay Trust, the City of Salisbury, the Henson School of Science and Technology, and the SU Department of Biological Sciences.

Students volunteering for the project in 2013 included Nicholas Beard, Megan Bock, Andrea Christ, Lyle Cook, Amanda Cooper, Adam Dunn, Alyssa Gabriel, Jessica James, Tabitha Kanagie, Kyron McCoy, Katherine Phillips, Jena Robbins, Andrew Slavik, and Jonathan Weber. Research students Lyle Cook and Alyssa Gabriel served as student coordinators of the volunteers, handling instrument calibration and maintenance, data entry and analysis, sample analysis oversight, and presentation of results, including production of the annual report. Andrew Slavik also produced GIS mapping of the data. More on the Wicomico Creekwatchers, including the latest annual report, may be found at <http://www.salisbury.edu/wicomicocreekwatchers/>.



Left to right: Lyle Cook (student coordinator), Andrew Slavik, Megan Bock, and Nicholas Beard analyzing water samples for the Wicomico Creekwatchers Program.

Salisbury University Student Research Conference

The Salisbury University Student Research Conference (SUSRC) committee announces the SUSRC on Friday, April 25, 2014. Presentations are organized into themed sessions, ranging from molecular biology to music composition, from education to economics. The conference culminates in a poster reception where the Outstanding Research Mentor Award is presented to a faculty member for excellence in guiding student research. The submission process involves three required steps: **(1) the deadline for a student to submit her or his intent to present is March 15**, (2) the faculty mentor must approve the student's work, and (3) the deadline to submit final abstracts is Sunday, April 1, 2014, by midnight. The conference is free and the public is invited. For more information visit <http://www.salisbury.edu/susrc>

OPPORTUNITIES

Torrey Botanical Society: Undergraduate Student Training Fellowship

Program URL: <http://www.torreybotanical.org/grants-awards/torrey-botanical-society-undergraduate-and-graduate-student-training-fellowship/>

The sponsor supports student training with an annual award of \$1,000. Deadline: 12/31/2013

American Society of Naturalists: Sewall Wright Award

Web Site: <http://www.asnamnat.org/awards>; Program URL: <http://www.asnamnat.org/awards#Wright>

The Sewall Wright Award is given annually and honors a senior but still active investigator who is making fundamental contributions to the Society's goals, namely, promoting the conceptual unification of the biological sciences.

Mount Desert Island Biological Laboratory:

NSF Research Experience for Undergraduates at MDIBL

Program URL: http://www.mdibl.org/undergraduate_application_process.php

The sponsor provides in-residence summer fellowships at Mount Desert Island Biological Lab for undergraduate students with a minimum of one semester of undergraduate biology. Deadline: 01/10/2014

Switzer (Robert and Patricia) Foundation: Fellowship Program - California and New England

Program URL: <http://switzernetwork.org/grant-programs/fellowship-program-how-apply#5>

The sponsor awards ten \$15,000 Environmental Fellowships in California and New England each year to support talented graduate students whose studies are directed toward improving environmental quality and who demonstrate the potential for leadership in their field. Awards have been made to students pursuing a wide range of environmental fields including environmental policy, economics, conservation, public health, journalism, architecture, environmental justice, business and law as well as traditional environmental sciences including biology, chemistry and engineering. Deadline: 01/10/2014

Cold Spring Harbor Laboratory: Undergraduate Research Program

Program URL: <http://www.cshl.edu/education/urp/application-guidelines>

CSHL Undergraduate Research Program (URP) provides instruction in the techniques of modern biology. Each year, approximately 25 students from around the world are accepted to the fully subsidized, 10-week summer program to work with senior Laboratory staff members on independent research projects in: Cancer biology; Neuroscience; Plant biology; Cellular and molecular biology; Genetics; Bioinformatics and Genomics. Deadline: 01/15/2014

OPPORTUNITIES cont.

Lunar and Planetary Institute: Summer Intern Program in Planetary Science

Web Site: <http://www.lpi.usra.edu/lpiintern/index.shtml>

The Lunar and Planetary Institute invites undergraduates with at least 50 semester hours of credit to experience cutting-edge research in the lunar and planetary sciences. Deadline: 01/17/2014

National Oceanic & Atmospheric Administration/Department of Commerce

Ernest F. Hollings Undergraduate Scholarship Program

Web Site: <http://www.oesd.noaa.gov/scholarships/hollings.html>

Program URL: <http://www.oesd.noaa.gov/scholarships/hollings.html#tab2>

Ernest F. Hollings scholarship program will provide selected undergraduate applicants with opportunities to increase recognition of and disciplined study in oceanic and atmospheric studies. Deadline: 01/31/2014

University of Pennsylvania: Summer Undergraduate Internship Program

Program URL: http://www.med.upenn.edu/bgs/applicants_suip.shtml

The internship program provides an intense research experience to students interested in graduate study in the biomedical and biological sciences. Interns complete ten weeks of full-time laboratory research, attend state-of-the-art research seminars, and receive career counseling from program faculty and administrators. The program seeks to encourage and prepare talented students to pursue careers in scholarly research. Deadline: 02/01/2014

University of Michigan: Research Experience for Undergraduates (REU) at the University of Michigan Biological Station

Program URL: <http://www.lsa.umich.edu/umbs/students/studentresearchopportunities/>

The Research Experiences for Undergraduates (REU) Program is a competitive program funded by the National Science Foundation. Biosphere-Atmosphere Interactions in a Changing Global Environment provides a truly interdisciplinary and hands-on experience in field biology and atmospheric science. Students engage with all phases of research, from hypothesis formulation and data gathering to analysis, interpretation, and communication of scientific findings. Deadline: 02/01/2014

Harvard Medical School: Summer Honors Undergraduate Research Program (SHURP)

Web Site: <http://dms.hms.harvard.edu/Diversity/shurp/>

SHURP is a ten-week summer research program primarily for college students belonging to groups that are underrepresented in the sciences. The Program is offered for currently-enrolled undergraduates who are considering careers in biological sciences, who have already had at least one summer (or equivalent term-time) of experience in a research laboratory, and who have taken at least one upper-level biology course that includes molecular biology. Deadline(s): 02/01/2014

University of California, Los Angeles: Summer Nursing Program: School of Nursing

Program URL: <http://nursing.ucla.edu/body.cfm?id=71>

This program is open to qualified nursing students from any undergraduate institution in the United States currently holding junior status. Preference will be given to first generation college students. Deadline: 02/03/2014

OPPORTUNITIES cont.

University of Notre Dame Department of Biological Sciences - NSF Summer Undergraduate Research Program - Integrative Cell and Molecular Biology

Program URL: <http://www3.nd.edu/~biosreu/apply.html>

The Department of Biological Sciences at the University of Notre Dame is sponsoring a NSF Research Experience for Undergraduates (REU) program during the summer of 2014. The focal point of the proposed projects is Integrative Cell and Molecular Biology. Deadline: 02/03/2014

**University of Texas Southwestern Medical Center at Dallas:
Summer Undergraduate Research Fellowship (SURF) Program**

Program URL: <http://www.utsouthwestern.edu/education/graduate-school/programs/non-degree-programs/surf.html>

The Summer Undergraduate Research Fellowship (SURF) program at UT Southwestern's Graduate School of Biomedical Sciences is an intensive summer research training experience designed for college students who are preparing for careers in biomedical research. Fellows spend 10 weeks (beginning in early June and ending mid-August) pursuing individual research projects in the laboratories of Graduate School faculty members. Deadline: 02/09/2014

University of Wisconsin-Madison

Integrated Biological Sciences Summer Research Program (IBS-SRP)

Web Site: <http://biology.wisc.edu>

Program URL: <http://biology.wisc.edu/Undergraduates-GettingInvolvedBeyondtheClassroom-UndergraduateResearch-IntegratedBiologicalSciencesSummerResearchProgram.htm>

SYNOPSIS: The Institute for Biology Education at the University of Wisconsin-Madison invites junior and senior undergraduate students interested in research careers in the biological sciences to participate in the Integrated Biological Sciences Summer Research Program (IBS-SRP). This hands-on research program is designed primarily to give students from other colleges and universities a chance to experience the richness of research at UW Madison. Deadline(s): 02/15/2014

University of Alabama at Birmingham

Summer in Biomedical Science (SIBS) Undergraduate Research Program

Web Site: <http://www.uab.edu>

Program URL: <http://www.uab.edu/medicine/sibs/>

The Summer in Biomedical Science (SIBS) Undergraduate Research Program will provide the opportunity for young people to be instructed in the techniques of modern biology while becoming integrated members of a vibrant clinical and scientific community. Deadline: 02/15/2014

University of California, San Diego: Summer Training Academy for Research in the Sciences (STARS)

Web Site: <http://ogs.ucsd.edu>

Program URL: <http://ogs.ucsd.edu/student-affairs/summer-research/stars/index.html>

The University of California, San Diego (UCSD) offers an eight week summer research academy for undergraduate students, recent graduates, and master's students. Deadline: 02/22/2014

FEATURED FACULTY

DR. PHILIP ANDERSON

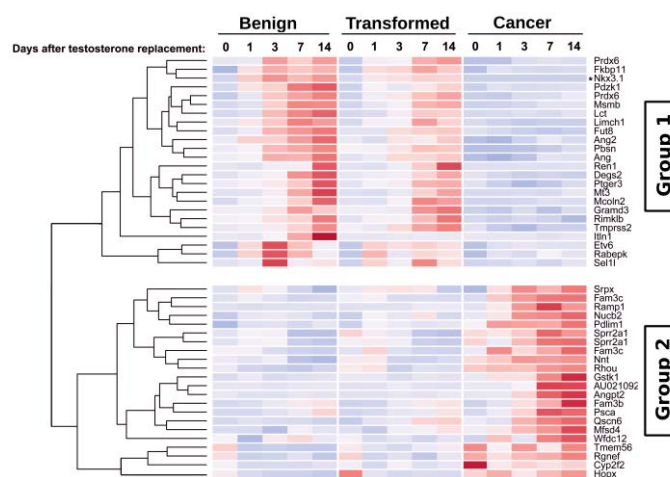
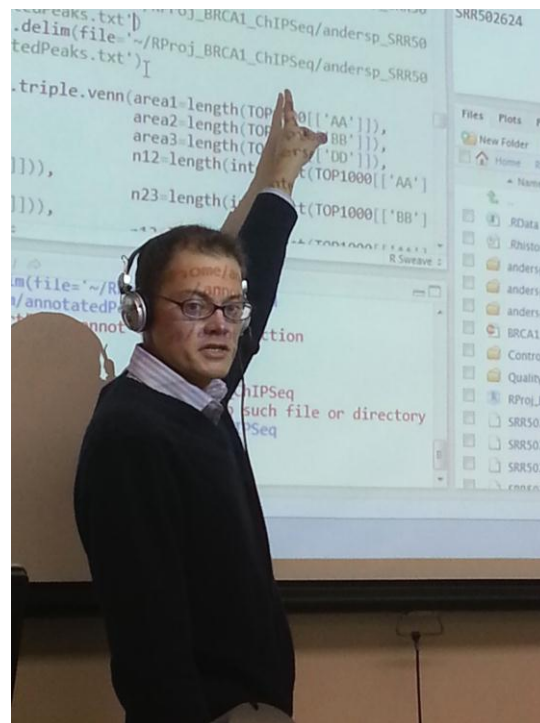
Courses Taught: In Fall 2013 I taught Biology: Concepts and Methods (BIOL 210) and Genomics (BIOL 490). In Spring I will teach BIOL 210 and Cell Biology Laboratory (BIOL 350). I will also be conducting research with undergraduate students to study genome variation in prostate cancer patients.

Research Interests:

My long-term research interests are in the area of genomics and using genome-level data to understand the basis of human disease. I am particularly interested in applying genome-level and systems-level tools to understand the cellular processes that are corrupted during prostate cancer initiation and progression.

In graduate school I experienced the revolution in genome sequencing that was shaking up the field of genetics. The first entire human genomes had been published and made available to researchers. Other scientists and I predicted the genome data contained vital clues to the onset and severity of many human diseases, and that the information could be used to predict treatment outcome and guide therapy for individual patients.

Personalized medicine requires knowledge of the natural variation that occurs in the human genome. My current research focuses on identifying variations in cancer genomes that are not present in normal genomes. For each cancer patient, we sequence the genomes of both the tumor and normal blood cells, producing matched cancer-normal pairs. Advances in computer science allow us to construct both the cancer and normal genomes in a highly parallel, time-saving way. We are presently combing our cancer and normal genomes to identify mutations driving the progression of the disease. Our goal is to find sites in the genome that are frequently targeted for disruption by the oncogenic process, and to develop interventions remedying the tumorigenic defect.



Before coming to SU I held positions at several colleges and universities. I began my studies in biology and computer science at Allegheny College in Meadville, Pennsylvania. In my junior year I participated in a summer research program for undergraduates at Carnegie-Mellon University and made the decision to pursue a career in science. I moved to Cleveland, Ohio to earn my doctoral degree at Case Western Reserve University School of Medicine. At Case Western I investigated the genetic risk factors for testicular cancer. After earning my degree I accepted a postdoctoral fellow position at Vanderbilt University Medical Center in Nashville, Tennessee. At Vanderbilt I switched to studying prostate cancer and took advantage of the ever-plummeting cost of sequencing to study how key oncogenes and tumor suppressor genes are corrupted during tumor development. I was recruited to the SU Department of Biological Sciences in March 2013. In June of 2013 I began building the computational infrastructure my lab requires to catalogue the genome variation that occurs in cancer patients. Helix, our new computer server, has been instrumental to my research program and for teaching the inaugural genomics class at SU.

Social Activities: I am a regular player at the bridge table on the second floor of the Henson school. We are a fun group of contract bridge veterans and novices who meet in HS213 every other Tuesday at 7 pm. New players who are interested in bridge are always welcome to come!

I am also an advisor for the SU sailing club. The sailing club includes students who are interested in both competitive and/or recreational sailing. The club has practices on Assawoman Bay during warmer parts of the year. Students new or experienced at sailing are encouraged to come out!



Before moving to Salisbury I was an active member of the Nashville Orchid Society. I have a collection of over one hundred historical and interesting plants that look forward to being grown in a greenhouse. In addition to taking care of the orchids, I play the piano and do recreational programming for several open-source projects.

Recent Publications:

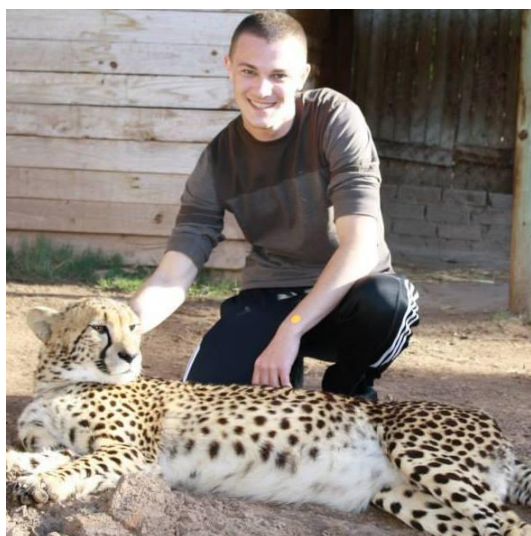
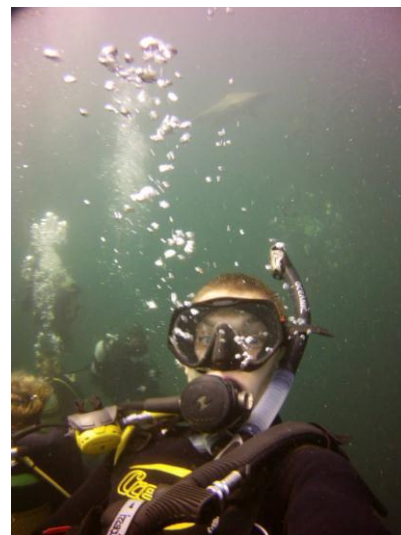
Anderson PD, McKissic SA, Logan M, Roh M, Franco OE, Wang J, Doubinskaia I, van der Meer R, Hayward SW, Eischen CM, Eltoum IE, Abdulkadir SA. 2012. Nkx3.1 and Myc crossregulate shared target genes in mouse and human prostate tumorigenesis. *Journal of Clinical Investigation*, 122: 1907 - 1919.

Martinez EE, **Anderson PD**, Logan M, Abdulkadir SA. 2012. Antioxidant Treatment Promotes Prostate Epithelial Proliferation in Nkx3.1 Mutant Mice. *PLoS One*, 7: e46792.

Wang J, **Anderson PD**, Luo W, Gius D, Roh M, Abdulkadir SA. 2012. Pim1 kinase is required to maintain tumorigenicity in MYC-expressing prostate cancer cells. *Oncogene*, 31: 1794 - 1803.

Mottle Bay Marine Lab Internship

Biology major Jordan Spusta spent the month of August 2013 in Mosselbay South Africa interning with [Ocean's Research](#). He participated in a range of research projects focused on the varied marine life living in Mosselbay. One such project was the photographic identification of Great White Sharks to track and identify individual members of the resident population. Another focused on observing the hunting methods associated with the breaching behavior of Great Whites based on visual patterns placed on decoys. Some additional projects that he participated in include a survey of the migratory habits and population dynamics of cetaceans traveling through the bay, trapping and tagging of small benthic sharks, shark husbandry and care in a shark lab aquarium, and the posthumous examination and dissection of adolescent sharks. The program allowed for weekend trips to view many of the attractions of South Africa from Capepoint in Capetown, the extensive Cango Caves system, and the Durban shoal. Oceans Research is a part of Oceans Campus, an environmental conservation project started by Ryan Johnson with several branches and internship possibilities from photography, underwater photography, nature documentary, research, to community outreach.



Primatology at SU

SU students had their first taste of primatology this fall with Dr. Reema Persad-Clem. In lecture, students explored the tremendous adaptive radiation seen in the primate order, discussing a variety of socioecological hypotheses (e.g. why "war, violence and men rule" in chimpanzee society and why "peace, love and women rule" in bonobo society). They compared selected primate anatomical features, meticulously making the same cranial measurements on extant primate skulls that were used to evaluate the controversial 'hobbit' *Homo floresiensis*.

From the start of the semester, 2 teams also worked together to plan and construct behavioral enrichment devices designed to increase naturalistic behaviors in the spider monkey and cotton-top tamarin areas at the Salisbury Zoo. Students collected behavioral data pre- and post- introduction of the devices and then presented their findings to the Zoo carestaff. The devices will continue to be used at the zoo, so swing by the primate habitats to see them in action! Some of the upcoming events in the last portion of the semester include spending a day with the primate carestaff at the National Zoo and having a roundtable discussion on primate conservation with primatologist Dr. Benjamin Beck. The teams worked closely with animal carestaff members Sherry Barlet and Ann Konopik on optimizing the devices and installing them in the habitats. Students in the course are Austin Bryant, Emily Cox, Megan McComas, Quasia Stokes, Briana James, Jewellianna Palenciana, Zane Parthan, Kelsey Schott, Cynthia Long.



Carefully stacking and bolting PVC pipes together.



Spider Monkey devices were stuffed with pine needles and dried fruit and then hung on rotating or movable pulleys.



Gingerly cracking open a coconut.



Completed coconut devices (stuffed with bamboo leaves and mealworms) before placement in the tamarin habitat.

TRAVEL AND PRESENTATIONS

Dr. Sam Geleta attended and presented at the American Society of Agronomy, Crop Science Society of Agronomy, and Soil Science Society of America's 2013 International Annual Meetings, November 3–6, Tampa, FL. The theme of the meeting was: "Water, Food, Energy & Innovation for a Sustainable World". The poster titled "Sweet Sorghum, a Potential Biofuel Crop for the Mid-Atlantic" was coauthored by Dr. Briand from SU and Dr. Kratochvil from UMD. The presentation was based on results of a three-year (2009–2011) research project funded by the Maryland Grain Producers Utilization Board. The following current and former Salisbury University students were instrumental in this project (managing the field, harvesting & processing the canes/seeds, plus data collection & management): Andrew Bell, Matt Blackwell, Abdi Geleta, Kristen King, Brian Knepper, Stacy Kyere, Colin Muir, Hoa Nguyen, Kayla Pennerman, Luke Raab, Joaquin Ramos, Jessica Schottroff, Susannah Taylor, Amber Warfield & Steven Weschler. Dr. Efrem Bechere of the USDA in Stoneville, Mississippi provided invaluable assistance with data analysis.

Dr. Elizabeth Emmert presented the talk "Use of *Bdellovibrio bacteriovorus* as a therapeutic agent to control bacterial infections" at the Allegheny Branch of the American Society for Microbiology meeting on Nov 1-2, 2013 at Saint Vincent College in Latrobe, PA. She also led a workshop titled, "Investigating and implementing the new ASM biosafety guidelines."

Mallory Hagadorn, a Masters student in the Applied Biology program presented at the Entomological Society of America meeting in Austin, Texas, November 2013.

- **M.A. Hagadorn**, J. Restein, K. Mitchell, and D.L. Price. 2013. Not all dung is created equal: Dung beetles on organic and conventionally managed cattle pastures. Entomological Society of America Annual Meeting, Austin, Texas, November 10–13.

Dr. Dana Price gave 2 presentations at the Entomological Society of America meeting in Austin, Texas, November, 2013.

- **D.L. Price**, and F. Feer. 2013. Dung beetles as indicators of habitat health: Sampling in French Guiana. Entomological Society of America Annual Meeting, Austin, Texas.
- E. Rentz, and **D.L. Price**. 2013. Diversity and succession of dung beetles to horse dung on Assateague Island, Maryland. Entomological Society of America Annual Meeting, Austin, Texas.

Amanda Biederman and **Mike Robben** presented their independent research at the 16th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences held on October 26 at UMBC. **Dr. Gene Williams** and **Dr. Patti Erickson** served as Judges during the poster competition.

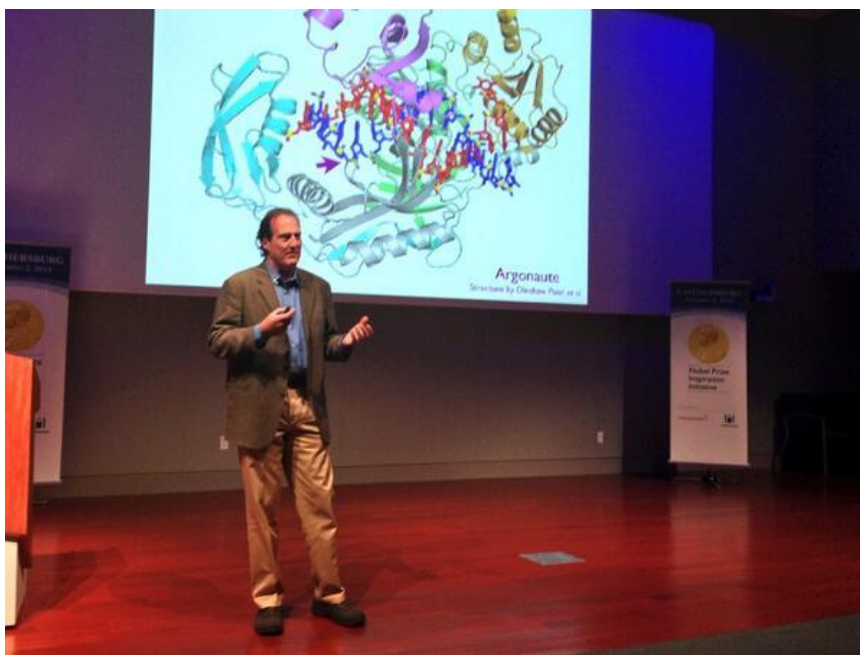
Mike Robben (shown right), won a second place award for his poster entitled "Oxidative Stress Response in *Caenorhabditis elegans* after suppression of *mrck-1* by RNA interference".





Students and faculty who attended the 16th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences. **Left to right:** Amanda Biederman, then Andrea Korell, Dr. Patti Erickson, Junior Mondestin, Alex Grogan, Mike Robben, and Alex Stuffer. Dr. Eugene Williams not shown.

Biology students **Amanda Biederman, Meagan Jezek, Stephen Kelly, Mike Robben and Zach Rathbun**, and **Dr. Patti Erickson** went to UMB on Nov 4th to hear Nobel Laureate Dr. Craig Mello give a presentation about his research as part of the Nobel Prize Inspiration Initiative.



PUBLICATIONS

Nelson Dyer (Biology graduate May 2012) and **Dr. Dana Price** published a paper in the *Coleopterists Bulletin*, an international journal devoted to the study of beetles.

Dyer, N.W., and D. L. Price. 2013. Notes on the diversity and foraging height of carrion beetles (Coleoptera: Silphidae) of the Nassawango Creek Preserve, Maryland, USA. *Coleopterists Bulletin* 67(3): 1–4. <http://www.bioone.org/doi/abs/10.1649/0010-065X-67.3.397>

Dr. Eric Liebgold recently published a paper in *Molecular Ecology*.

Liebgold, EB, NM Gerlach, ED Ketterson. 2013. Similarity in temporal variation in sex-biased dispersal over short and long distances in the dark-eyed junco *Junco hyemalis*. *Molecular Ecology* 22:5548–5560. <http://onlinelibrary.wiley.com/doi/10.1111/mec.12508/abstract>

ALUMNI NEWS

Lauren Crowder has just been hired as the Clinical Research Coordinator for the Advanced Pediatric Brain Imaging Laboratory at Children’s National Medical Center.

Sarah Rubin (class of 2009) is now the Director of Education and Exhibits at the Delmarva Discovery Center, Pocomoke City, MD.

This fall **Eleanor Siri** (shown right) started the Doctor of Optometry program at Pennsylvania College of Optometry at Salus University in Elkins Park, PA.



If you have announcements to add or general comments regarding the Newsletter, please email dlprice@salisbury.edu.

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